Removal of heavy metals from textile wastewater using Zeolite.

ABSTRACT

Heavy metals such as lead (Pb), chromium (Cr), cadmium (Cd) and copper (Cu) are widely used for production of colour pigments of textile dyes. Textile dyes pollutants are being released to the environment at various stages of operation therefore it is necessary that the pollutants are treated before discharge using zeolite with and without alum. A study was carried out to compare the effectiveness of treatment using zeolite with and without alum for the removal of heavy metals (Pb, Cu, Cd, Cr) in textile effluent. The concentrations of these heavy metals in the textile wastewater samples were reduced to more than 50 percent after treating with zeolite. The sequence in increasing order of removal efficiency of these heavy metals using zeolite was Cd < Pb < Cr < Cu. When the textile wastewater sample was treated using zeolite and 10 mg/L of alum, 80% of the heavy metals (Cd and Cu) were removed. The most effective treatment prior to removal of heavy metals from textile wastewater sample is by using zeolite with the addition of 10 mg/L of alum as flocculants.

Keyword: Textile wastewater; Zeolite; Heavy metals; Alum.